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PO Box 14300
Washington, DC 20044-4300

EXAMINER

HESS, MICHAEL THOMAS

ART UNIT	PAPER NUMBER
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3709

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/524,294

Applicant(s)

YUASA, MITSUHIRO

Examiner

Michael T. Hess

Art Unit

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 3-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>02/11/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of the Species corresponding to Figures 5-9 in the reply filed on March 27, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 5-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected Species corresponding to Figures 10-16 and 17-23, there being no allowable generic or linking claim.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the step wherein a MEMS circuit is fabricated into said substrate of claim 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide sufficient antecedent basis for claim 4, wherein a MEMS circuit is fabricated into said substrate. The specification does not discuss whether the MEMS circuit is the apparatus produced from the steps of claim 3 or whether the MEMS circuit is a completely separate device that is fabricated into the substrate of claim 3 and thus, the specification does not provide sufficient antecedent basis for determining what is the MEMS circuit fabrication.

Appropriate correction is required.

Claim Objections

5. Claim 4 is objected to because of the following informality: the acronym "MEMS" in Claim 4 should be "Micro-Electro-Mechanical System." Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationship is the relationship between the fabrication of the MEMS circuit and whether this fabrication is the method as recited in claim 3 or whether the fabrication of the MEMS circuit is a different process resulting in a separate apparatus.

In view of the objection to the drawings and objection to the specification above, applicant has not particularly pointed out or distinctly claimed what the fabrication of a MEMS circuit into said substrate encompasses.

Claim Rejections – 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,463,330 to Yoneyama (Yoneyama).

In Reference to Claim 3

A method for fabricating a nonradiative dielectric waveguide, comprising the steps of:

forming a first conductive (Fig. 1B; Ref. #2) film on a substrate (it is inherent in the reference that a conductive layer must be formed on a substrate);

forming on said first conductive film a second dielectric film (Fig. 1B; Ref. #6; Col. 1, Lines 26-28) whose dielectric constant is larger than that of a first dielectric film (Co. 1, Lines 28-29);

embedding said first dielectric film (Fig. 1B; Ref. #5; Col. 1, Lines 26-28) in an area where said second dielectric film has been etched away (it is inherent in the reference that the second dielectric film would be etched to fit both the first and second dielectric material on the first conductive layer); and

forming a second conductive film on said first dielectric film and said second dielectric film (Fig. 1B, Ref. #1).

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11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claim 3 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,640,429 to Sasaki (Sasaki).

In Reference to Claim 3

A method for fabricating a nonradiative dielectric waveguide, comprising the steps of:

forming a first conductive (Fig. 3(a), Ref. #22) film on a substrate (Fig. 3(a), Ref. # 21, the support layer);

forming on said first conductive film a second dielectric film (Fig. 3(a), Ref. #24) whose dielectric constant is larger than that of a first dielectric film (Col. 4, Lines 24-26);

embedding said first dielectric film (Fig. 3(c), Ref. #11) in an area where said second dielectric film has been etched away (Col. 4, Lines 31-45, discussing etching away layer 24 and forming insulating layer 11); and

forming a second conductive film on said first dielectric film and said second dielectric film (Fig. 3(f), Ref. #26).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. In view of the 35 U.S.C. § 112, ¶2 rejection of Claim 4 above, Examiner is interpreting "wherein a MEMS circuit is fabricated into said substrate" as meaning a MEMS circuit, not necessarily the one resulting from the steps of Claim 3, is fabricated in said substrate and thus, Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki in view of U.S. Patent No. 6,611,237 to Smith (Smith).

In Reference to Claim 4

Sasaki teaches:

a method for fabricating a nonradiative dielectric waveguide as claimed in claim 3 (see 35 U.S.C. § 102(e) rejection of claim 3 above)

However, Sasaki fails to teach:

wherein a MEMS circuit is fabricated into said substrate.

Smith teaches:

wherein a MEMS circuit (Cols. 3-4, Lines 53-10, discussing making a micro-switch through a MEMS process) is fabricated into said substrate (Cols. 2-3, Lines 64-1, discussing the integration of electronic devices directly into substrates) in order to reduce material used, reduce costs and increase performance (Col. 2, Lines 61-67).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the step of fabricating a MEMS circuit into the substrate as in Smith in the method for fabricating a nonradiative dielectric waveguide of Sasaki in order to increase performance and reduce productions cost of nonradiative dielectric waveguides.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- U.S. Patent No. 6,563,630 to Anderson et al. is relevant prior art because it justifies Examiner's claim that a substrate and etching are inherent in the Yoneyama reference.
- U.S. Patent No. 6,885,795 to Hsu et al.; 6,640,403 to Shih, et al.; 6,104,264 to Ishikawa et al.; 4,688,009 to Ferguson et al.; 4,028,643 to Itoh; 5,943,005 to Tanizaki et al.; 5,652,557 to Ishikawa; and U.S. Publication No. 2002/0185730 A1 to Ahn et al. are relevant prior art because it discusses the structure of a waveguide.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael T. Hess whose telephone number is 571-270-1994. The examiner can normally be reached on 6:30 AM - 5:00 PM, Monday - Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Bomberg can be reached on 571-272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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PRIMARY PATENT EXAMINER